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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID BLAKER and DAN WINKELSTEIN

Appeal 2009-008840¹
Application 09/845,432
Technology Center 2100

Before JEAN R. HOMERE, THU A. DANG, and JAMES R. HUGHES,
Administrative Patent Judges.

HOMERE, *Administrative Patent Judge.*

DECISION ON APPEAL

¹ The real party in interest is Hifn Inc. (Br. 1.)

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I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1-13, 37, and 40. Claims 14-36, 38, 39, and 41-62 have been canceled. (Br. 2.) We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants' Invention

Appellants invented a hash based and linear based operations for searching a database having value entries, each including a hash value. (Spec. 3, ll. 26-32.)

Illustrative Claim

Independent claims 1, 37, and 40 further illustrate the invention. The claims read as follows, respectively:

1. A method of searching a database, the method comprising:

generating a hash key value based on a plurality of selector values;

selecting an entry in the database having an address corresponding to the hash key value, wherein entries in the database include corresponding hash values;

evaluating the selected entry to determine if the entry in the database corresponds to the plurality of selector values;

incrementing the address corresponding to the hash key value if the selected entry does not correspond to the plurality of selector values;

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wherein the selecting, the evaluating and the incrementing are repeated until the hash value included in selected entry has a value which indicates that entries subsequent to the selected entry will not correspond to the plurality of selector values.

37. A system searching a database, comprising:

means for generating a hash key value based on a plurality of selector values;

means for selecting an entry in the database having an address corresponding to the hash key value, wherein entries in the database include corresponding hash values;

means for evaluating the selected entry to determine if the entry in the database corresponds to the plurality of selector values;

means for incrementing the address corresponding to the hash key value if the selected entry does not correspond to the plurality of selector values;

means for repeatedly selecting, evaluating and incrementing until the selected entry has a null value or the hash value included in selected entry has a value other than the hash key value.

40. A computer program product for searching a database, comprising:

a computer-readable storage medium having computer-readable program code embodied therein, the computer readable program code comprising:

computer-readable program code which generates a hash key value based on a plurality of selector values;

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computer-readable program code which selects an entry in the database having an address corresponding to the hash key value, wherein entries in the database include corresponding hash values;

computer-readable program code which evaluates the selected entry to determine if the entry in the database corresponds to the plurality of selector values;

computer-readable program code which increments the address corresponding to the hash key value if the selected entry does not correspond to the plurality of selector values;

computer-readable program code which repeatedly selects, evaluates and increments until the selected entry has a null value or the hash value included in selected entry has a value other than the hash key value.

Prior Art Relied Upon

Sharma US 5,511,190 Apr. 23, 1996

Rejections on Appeal

The Examiner rejects the claims on appeal as follows:

1. Claims 1-13, 37, and 40 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.
2. Claims 1-6, 10-13, 37, and 40 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sharma.

Appellants' Contentions

First, Appellants contend that each of claims 1, 37, and 40 provides a useful, concrete, and tangible result; they each fall into a statutory category of invention; and they are not directed to an abstract idea. Therefore,

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Appellants submit that the claims are directed to statutory subject matter.
(Br. 4-6.)

Next, Appellants contend that Sharma does not describe a plurality of database entries, each including corresponding hash values, as recited in independent claim 1. (Br. 7-9.) According to Appellants, Sharma discloses using hash index key values on a hashing function to generate output values or addresses, which serve as an index for a hash table that identifies the locations of various entries in the database. However, the database entries do not include a corresponding hash value as recited in claim 1. (*Id.* at 8.)

Examiner's Findings

The Examiner finds that the system of claims 1, 37, and 40 are directed to non-statutory subject matter since the recited steps of generating, selecting, and evaluating produce an intangible selection, which is not a tangible result, and does not require a physical transformation. (Ans. 3 and 9.) Further, the Examiner finds that claims 37 and 40 are directed to software per se. (*Id.*)

Next, the Examiner finds that Sharma's disclosure describes the disputed limitation. (*Id.* at 10.)

II. ISSUES

1. Have Appellants shown that the Examiner erred in finding that claims 1-13, 37, and 40 are directed to non-statutory subject matter?

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2. Have Appellants shown that the Examiner erred in finding that Sharma describes a plurality of database entries, each including corresponding hash values, as recited in independent claim 1?

III. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Appellants' Specification

1. Appellants' Specification indicates that a computer-readable medium can be paper. (Spec. 11, l. 24.)

Sharma

2. Sharma discloses a method and system for using hash-based techniques to search a database. (Abst.) In particular, Sharma describes applying unique values stored in a group column (GC 252) of a table (T1 212) to a hash function (HF 210) to generate an index for a hash table (HT 216) containing output values or addresses, each identifying a corresponding entry (dname, sum_salary, count) in a group table (GT 218) of a database. (Col. 8, ll. 6-18, col. 9, ll. 31-58, col. 10, ll. 23-39, Fig. 2.)

IV. ANALYSIS

35 U.S.C. § 101 Rejection

Independent claim 1 recites, in relevant part, a method of searching a database including the steps of generating a hashed key value, selecting a database entry, evaluating the entry, and incrementing the address thereof.

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We agree with the Examiner that the recited method does not require a physical transformation nor is it tied to a particular machine.² In particular,

² “[The Supreme] Court’s precedents establish that the machine-or-transformation test is a useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101. The machine-or-transformation test is not the sole test for deciding whether an invention is a patent-eligible ‘process.’” *See Bilski v. Kappos*, 130 S.Ct. 3218, 3227 (2010).

The Court of Appeals for the Federal Circuit (“CAFC”) stated the machine-or-transformation test for process claims. *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc). The CAFC explained the machine-or-transformation test as follows:

The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article. *See [Gottschalk v.] Benson*, 409 U.S. [63], 70 [(CCPA 1972)]. Certain considerations are applicable to analysis under either branch. First, as illustrated by *Benson* and discussed below, the use of a specific machine or transformation of an article must impose meaningful limits on the claim’s scope to impart patent-eligibility. [*Id.* at 71-72.] Second, the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity. *See [Parker v.] Flook*, 437 U.S. [584,] 590 [(1978)].

Id. at 961-62 (parallel citations omitted).

The Supreme Court held that there are other tools for establishing subject matter eligibility under 35 U.S.C. § 101. *See Bilski*, 130 S.Ct. at 3229. Those tools involve an inquiry into whether a process is merely an abstract idea. “In searching for a limiting principle, this Court’s precedents on the unpatentability of abstract ideas provide useful tools.” (*Id.*) The Court outlined one such precedent:

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the recited steps do not amount to transforming an article from a different state or thing. Further, these steps are not required to be performed by a particular machine. In fact, the claimed steps appear to culminate in an abstract idea as they can be performed mentally. Therefore, we are satisfied that the method claim 1 is not directed to statutory subject matter. It follows that Appellants have not shown that the Examiner erred in finding that claims 1-13 are directed to non-statutory subject matter.

Next, we agree with the Examiner that claims 37 and 40 are directed to software program *per se*.

In particular, the system of claim 37 recites a plurality of means for performing a plurality of functions that result in searching a database. Appellants indicate that the recited means are mere program codes within a

In *Benson*, the Court considered whether a patent application for an algorithm to convert binary-coded decimal numerals into pure binary code was a “process” under §101. [*Benson*, at 64–67]. The Court first explained that “[a] principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.” [Id. at 67] (quoting *Le Roy* [v. *Tatham*, 55 U.S. 156, 175 (1852)]). The Court then held the application at issue was not a “process,” but an unpatentable abstract idea. “It is conceded that one may not patent an idea. But in practical effect that would be the result if the formula for converting . . . numerals to pure binary numerals were patented in this case.” [Id.] at 71. A contrary holding “would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself.” *Id.* at 72.

Id. at 3230 (parallel citations omitted).

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flowchart (Br. 2-3.) which does not necessarily entail the use of a processing device programmed or configured to perform the various operations recited in the claim. We thus find the claimed system implicates program code written on a sheet of paper (i.e. Software program per se). Therefore, the claimed system is not directed to a machine.³

Similarly, the computer program product of claim 40 includes a computer-readable medium having computer-readable program code embodied. Since Appellants' Specification defines the computer-readable medium as including a piece of paper (FF. 1), the recited program product implicates computer program code written on a sheet of paper (i.e. Software program per se). It follows that Appellants have not shown that the Examiner erred in finding that claims 37 and 40 are directed to non-statutory subject matter.

35 U.S.C. § 102 Rejection

Independent claim 1 requires, *inter alia*, a plurality of database entries, each including corresponding hash values.

As set forth in the Findings of Fact section, Sharma discloses using hashed index addresses to access corresponding database entries (FF2). We

³ “[A] machine is a concrete thing, consisting of parts, or of certain devices and combination of devices. This includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result.” *In re Ferguson*, 558 F.3d 1359, 1364 (Fed. Cir. 2009) (quoting *In re Nuijten*, 500 F.3d 1346, 1355 (Fed. Cir. 2007), *reh’g denied en banc*, 515 F.3d 1361 (Fed. Cir. 2008), and *cert. denied*, 129 S. Ct. 70 (2008)) (internal quotation marks omitted).

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agree with Appellants that Sharma's database entries do not include hash values. While citing several textual portions of Sharma, the Examiner has failed to explain, and we have been unable to verify how Sharma's disclosure teaches the disputed limitation. Therefore, we find the cited portions of Sharma simply fall short of describing database entries that include hash values. Since Appellants have shown at least one error in the Examiner's rejection of claim 1, we find that Appellants have shown that the Examiner erred in finding that Sharma anticipates claim 1 unpatentable.

Since claims 2-6, 10-13, 37, and 40 recite the limitations of claim 1 discussed above, we conclude for aforementioned reasons that Appellants have also shown error in the Examiner's rejection of those claims.

V. CONCLUSIONS OF LAW

1. Appellants have not established that the Examiner erred in rejecting claim 1-13, 37, and 40 as being directed to non-statutory subject matter.
2. Appellants have established that the Examiner erred in rejecting claims 1-6, 10-13, 37, and 40 as being anticipated by Sharma.

VI. DECISION

1. We affirm the Examiner's rejection that claims 1-13, 37, and 40 as being directed to non-statutory subject matter under 35 U.S.C. § 101.
2. We reverse the Examiner's rejection that claims 1-6, 10-13, 37, and 40 as being anticipated under 35 U.S.C. § 102(b) over Sharma.

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Because we have affirmed at least one ground of rejection with respect to each claim on appeal, we affirm the Examiner's decision. *See* 37 C.F.R. § 41.50(a)(1).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

llw